

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0009189
Insp Area: 1

Site Address: 5638 SPILMAN AV SAC
Parcel No: 005-0161-012

Sub-Type: RES
Housing (Y/N): N

CONTRACTOR
SIERRA PACIFIC HOME
3790 OMEC CIRCLE
RANCHO CORDOVA, CA. 95742

OWNER
ALLCHIN AUDRY
5638 SPILMAN AV
SACRAMENTO CA 95819

ARCHITECT

Nature of Work: CUT IN GAS/ ELECTRICAL PACKAGE UNIT ON ROOF. SOLAR FOR POOL.

CONSTRUCTION LENDING AGENCY: I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name Cash Lender's Address _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

X License Class C-20 License Number 453302 Date 08-10-00 Contractor Signature [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00):

____ I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

____ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law)

I am exempt under Sec _____ B & PC for this reason: _____

Date _____ Owner Signature _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

X Date 08/10/00 Applicant/Agent Signature [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

____ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier Explorer Insur. Co. Policy Number 170204300 Exp Date 01/01/01

____ (This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

X Date 08/10/00 Applicant Signature [Signature]

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.



Val
3168

PERMIT

3790 OMEC CIRCLE • RANCHO CORDOVA, CALIFORNIA 95742 • (916) 638-0543
Calif. State Contractor's License No. 453302

INSTALLATION DIRECTIVE

CUSTOMER AUDREY ALLCHIN MAP COORD _____
 ADDRESS 5638 SPILMAN AVE DIRECTIONS TO JOB SITE: _____
 CITY SACRAMENTO, CA 95819
 PHONE: work (his) NA work (hers) NA home 454-2705
 DATE OF ORDER 7/12/10 BUILDER PELICAN DESIGNER GENE

EQUIPMENT LIST SPS INSTALL SELF INSTALL
4 12' Solar Panels JALDY Type Of Control
1 10' Solar Panels AUTO
 _____ 8' Solar Panels _____ System Assembly Package
 _____ Fiberglass Substrate _____ Sweep Delay
 _____ Existing Control Type



TYPE OF ROOF COMPOSITION PITCH 4/12 COMPASS DIRECTION 65 %
 POOL AREA SQ. FT. 300 SHADE ON POOL? N/A ON ROOF? N/A
 PUMP H.P. 3/4 TYPE CLEANER POLARIS 360 1 Story 2 Story _____
 FILTER TYPE & SQ. FT. 300 HEATER SIZE N/A

OTHER CHARGES _____ SPS TO BUILD? YES NO
 _____ SACRAMENTO CITY RACKS _____ ALUM _____ REDWOOD
 _____ TAR & GRAVEL FLAT ROOF RACKS IF NOT, WHO? _____
 _____ TILE ROOF RACKS ARBOR _____
 _____ HEATER REMOVAL & HAUL AWAY GROUND RACK _____
 _____ SYSTEM REMOVAL _____ PIPE _____ PANELS PATIO RACK _____
 _____ TRELLIS _____

COMMENTS TO CREW _____

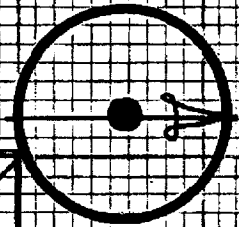
STATEMENT OF PERFORMANCE

Due to variations in weather and other environmental conditions surrounding a solar heating system, the specific performance of this system cannot be guaranteed; however, the design of this proposed system is expected to yield a nominal pool water temperature of _____ degrees (F) from _____ to _____ without the use of supplementary heating.

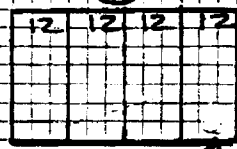
CUSTOMER SIGNATURE _____

DIAGRAM INSTRUCTIONS

Draw location of house as situated on property in relation to pool and pool equipment pad. Indicate roof measurements and placement of solar collector panels.



INDICATE SOUTH



PANEL WOULD FIT HERE, BUT SAE WOULD PREFER HAVE THEM ALL TOGETHER

WOODEN DECK

LAY PIPE UNDER DECK TO SIDE OF HOSE

12' TRENCH ACROSS LAWN

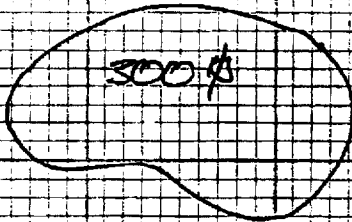
DRIVEWAY

8' TUNNEL UNDER CEMENT WALKWAY

GAR AGE

DIET. PUMP AREA

EQUIP



NEW POOL EQ SOLD

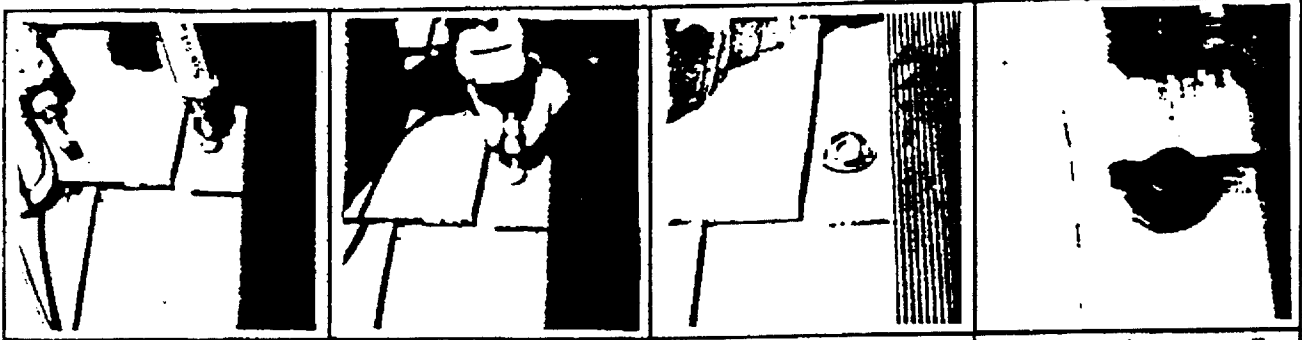
PUMP SIZE & TYPE _____ FILTER SIZE & TYPE _____

SWEEP TYPE _____ BOOSTER PUMP _____

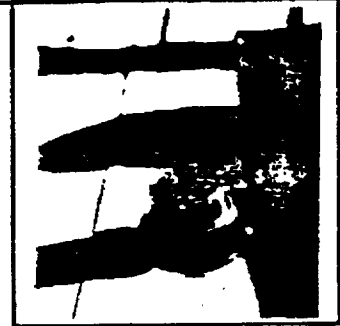
Mounting the Solar Collectors

FAFCO

BRACKET INSTALLATION



1. Locate bracket base on roofing above subroof or sheathing. (Do not attempt to attach brackets to roof material only!)
2. Mark and drill a pilot hole.
3. Inject the FAFCO recommended sealant into the pilot hole, being certain to leave enough on top of the hole so that a small amount will ooze out around the bracket when it is secured.
4. Put the lag screw into the bracket base and secure the bracket base to the roof.
5. Lay the panel strap through the bracket base. Panel straps can be put through single or doubled over.
6. Screw on a bracket cap and hand tighten. A 1/2" ratchet may be used to tighten the cap if desired.



SUBSTRATE

Substrate is a sheet of 2 1/2" corrugated 4 oz. fiberglass that is used as a protective measure and goes between the solar panel and mounting surface. It will provide the necessary support for the panels and protect the roof. Substrate is required on all roof types and shake or wooden shingle, tar and gravel, tile or cement shingle. Simply lay it under the panel.

BUILT UP ROOFING

A tar and gravel or tile roof requires special care. For further instructions contact your local distributor.

SEALING SEQUENCE

SPECIAL CARE AND ATTENTION SHOULD BE EXERCISED IN SEALING THE LAG SCREWS WHERE THEY PENETRATE THE PRIMARY ROOF. FOLLOW THE DIRECTIONS CAREFULLY.

TOP AND BOTTOM HEADER TIE-DOWN



Both the top and bottom ties are secured the same way. Use the webbed strap for the top ties and the stretchy vinyl strap for the bottom ties.

1. Pass the strap around the rubber coupler.
2. Mark a spot 4" to 7" from the header pipe of the panel.
3. Secure a mounting bracket at the spot you marked per the instructions above.
4. Lay both ends of the strap through the mounting bracket base and screw on a cap.

Before You Call For Service



To avoid unnecessary service calls...use this check list for your FAFCO System.

If There's No Power Light (300 Series Only)

1. Put Function Switch (A) on "On" Position...if still no light, check to see if circuit to auto control is powered.

If The System Does Not Appear To Be Heating The Pool

1. Is the Filter and Leaf Trap clean?
2. Is timer set 8-10 a.m. to 4-5 p.m., or for at least 8 hours operation during solar hours?
3. Have you been refilling the pool with cold water a lot lately?
4. Has weather been marginal?
5. Are the panels operating "cool" to the touch on a sunny day?
6. If night time temperatures are very low, are you using a pool blanket to retain the heat provided by the solar system during the day?

If There Are No Initial Bubbles

1. Make sure the pump is turned on and is working (if it does not go on, check fuse if it has one, and check the power to the pump).
2. (300 only) Place Function Switch (A) on Automatic Control in "On" position...it is possible that the system is not supposed to be working due to the fact that the pool temperature is already at Desired Temp, or there is not enough radiant heat available.
3. Check Isolation Valves (5) to make sure they are open.

If Tiny Champagne Bubbles Continue

...past the initial purging (3-5 minutes)...this may be an indication that the water circulation through the panels has been reduced to the point where the Vacuum Relief Valve (mounted in the end of the solar collector array) is admitting air either continuously or intermittently; therefore: check Pump and Leaf Trap for proper operation...be sure the pool filter and leaf trap is clean. It is possible that some small bubbles will always be discharged into the pool due to the particular characteristics of the system's normal operation. They do not affect the operation of the system nor impair the proper function of any other pool equipment.

Occasionally Check the Automatic Timer

...for your pool pump to see that the clock is set for the proper time. Power failures, adjustments for Daylight Saving Time, etc. will put it behind. It will be necessary to adjust the timer according to the season so that the Solar System will operate during the most beneficial hours of the day.

Pool Cleaner Timer

Special care must be taken when setting the timer for automatic pool cleaning equipment. Set your pool cleaning equipment timer to turn on after the solar system. Typically, operating hours between 12:00 and 8:00 a.m. or p.m. are acceptable. This precaution prevents air from entering and possibly damaging pool cleaning equipment during the startup of your solar system.

Your FAFCO Solar System

Thank you

Since 1969, our goal has been to design, test and produce a solar heating system that will let you get additional swimming pleasure from your pool. Keep this manual within easy reach and refer to it often.

What You can Expect From Your Solar System

As wonderful and abundant as solar energy is...it will not work miracles. And, with systems being installed in every part of the country varying widely in weather conditions...it is difficult to give performance temperatures here that would hold true in all areas. With these considerations in mind...and assuming you're having sunny weather and your system is on...you can expect it to:

1. heat the water 2°F-5°F every time it passes through the system.
2. raise your pool's temperature 5°F-15°F over a period of several days of good weather.
3. eliminate or significantly reduce the cost of operating your fossil fuel pool heater...but not totally replace it during the colder less sunny months (a nighttime pool cover will enhance #2 & 3. above).
4. give you years of trouble-free service even beyond the 10-year warranty.

System Specifications

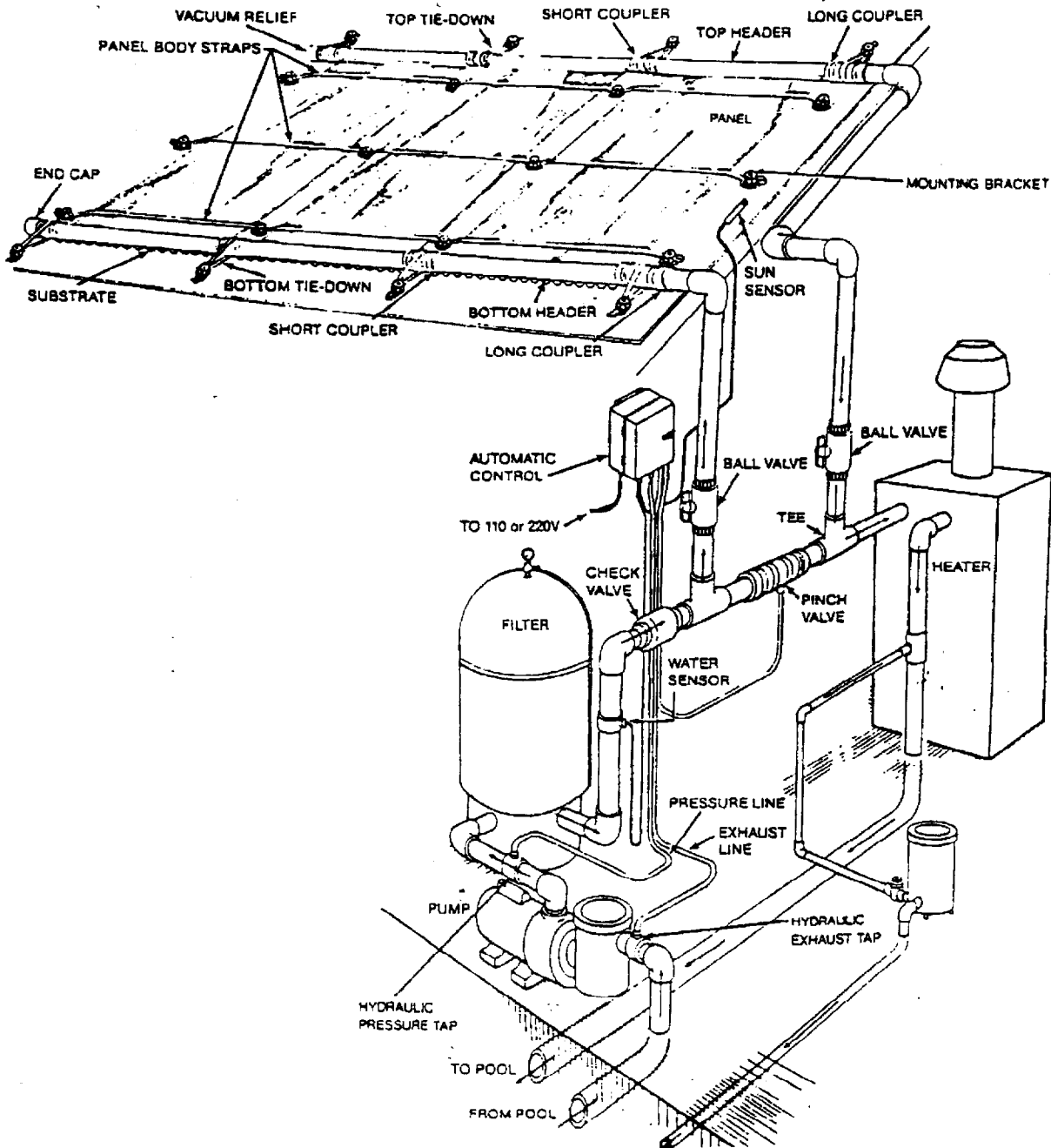
ROOF MOUNTING SPACE:	Width— (number of panels x 51.5") + 24" Length—Panel length + 24"
RACK SPACE:	Width— (number of panels x 51.5") + 2" Length—Panel length + 8"
FLOW:	Recommended flow—4 gpm per panel (0.88 psi headloss) Maximum recommended flow—8 gpm per panel (3.53 psi headloss) Minimum recommended flow—3 gpm per panel (0.50 psi headloss)
PANELS PER BANK: (Maximum)	12 panels single end feed 17 panels diagonal feed
PRESSURE:	Normal Operating Pressure 0 to 15 psi Maximum Intermittent Pressure 35 psi
80°F (27°C)	
CORROSION:	Non-corrosive
WEIGHT: (4' x 10')	Without water—19 lbs. or 0.47 lbs./ft. ² Full of water—53 lbs. or 1.33 lbs./ft. ²

This manual is designed for residential use only. Commercial systems, or any other system in excess of 20 panels, require further engineering and design. Please contact your local FAFCO distributor.

Represented by

Component Identification

FRACO



CONTENTS

COMPONENT IDENTIFICATIONS

Page 2

BEFORE YOU START

Page 3

MOUNTING THE SOLAR COLLECTORS

Page 4

PANEL COUPLING ASSEMBLY

Page 6

PLUMBING MODIFICATIONS

Page 7

MODEL 600 CONTROL

Page 8

MODEL 300 CONTROL

Page 9

CHECK LIST AND TROUBLESHOOTING

Page 11

County of Sacramento
SOLAR INSTALLATION WORKSHEET

Pool/Spa

Domestic Hot Water

Space Heating

PLOT PLAN Show Location of Collector(s), Storage Tank(s) and Control

DESIGN DATA

Collector MFG. FAFCO Model PROFILE
 Dimensions: L 12 x W 4 x H 4
 Weight 21 lbs. Dry 73.3 lbs. Wet
 Max. Live Load 1.33 lbs/ft
 Heat Transfer (Fluid/Gas)
 Certification IAPMO S-1889
 Storage Tank MFG. N/A Size IAPMO No.
 Model
 Control MFG. COMPOOL IAPMO No. S-1889
 Model LX-22 Motor IAPMO No.
 Circulator Pump MFG.
 Model
 Max. Flow Rate 8 GPM/SCFM
 System Operating Pressure 0-15
 System Operating Temp.: HI. 95° F/Lo 40° F

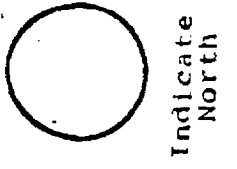
ROOF DESIGN

Type Covering
 Type Frame: Truss Conventional
 Size of Frame Members 2 x 6 @ 2 o.c.
 Clear Span. 10 Ft. Roof Pitch 4:12
 Support Required: Yes No

ADDITIONAL INFORMATION

MFR. Installation Data Yes No
 MFR. System Flow Diagram Yes No
 MFR. Electrical Schematic Yes No
 MFR. Test Instruction Yes No
 System Certification(s) Yes No

Front Scale:



Owner: Telephone:

Address:

Location: Zip:

Contractor SIERRA SUN INDUSTRIES Co. Reg. No.

EH/CL 2-26-81

SPAN TABLES
USING D.F. #2 STD AND BTR

FLOOR JOISTS: 40 lbs/Sq. Ft.

L/360 Deflection Limit

SIZE	SPACING	SPAN W/FINISH CLG BLW D.L. = 20#	SPAN W/ NO CLG BELOW D.L. = 10#
2 X 6	12" oc	10' - 6"	10' - 9"
	16" oc	9' - 1"	9' - 9"
	24" oc	7' - 5"	8' - 2"
2 X 8	12" oc	13' - 3"	14' - 2"
	16" oc	11' - 6"	12' - 7"
	24" oc	9' - 5"	10' - 3"
2 X 10	12" oc	16' - 3"	17' - 8"
	16" oc	14' - 0"	15' - 3"
	24" oc	11' - 5"	12' - 7"
2 X 12	12" oc	18' - 9"	20' - 7"
	16" oc	16' - 3"	17' - 10"
	24" oc	13' - 4"	14' - 6"

5 lbs/ Sq. Ft. D.L.
CEILING JOISTS: 10 lbs/ Sq. Ft. L.L. L/240 Deflection Limit

Spacing	2 X 4	2 X 6	2 X 8	2 X 10
16' oc	11' - 3"	17' - 8"	23' - 0"	26' - 0"
24' oc	9' - 10"	14' - 9"	18' - 9"	22' - 11"

RAFTERS 20 L.B. L.L. (PROVIDE MANUFACTURE'S SPECS FOR TILE ROOFS)

SIZE	SPACING	10# D.L. - 20# L.L. L/240	15# D.L. - 20# L.L. L/180	20# D.L. - 20# L.L. L/180
2 x 4	16" oc	8' - 9'	8' - 1"	7' - 7"
	24" oc	7' - 2"	6' - 7"	6' - 2"
2 X 6	16" oc	12' - 10"	11' - 10"	11' - 1"
	24" oc	10' - 5"	9' - 8"	9' - 1"
2 X 8	16" oc	16' - 3"	15' - 0"	14' - 0"
	24" oc	13' - 3"	12' - 3"	11' - 6"
2 X 10	16" oc	19' - 10"	18' - 4"	17' - 2"
	24" oc	16' - 2"	15' - 0"	14' - 0"

WINDOWS AND DOOR HEADERS: DOUGLAS FIR #2

SIZE	OPENING
2 - 2X4 OR 4X4	UP TO 4' 0"
2 - 2X6 OR 4X6	4' - 0" - 6' - 0"
2 - 2X8 OR 4X8	6' - 0" - 8' - 0"
2 - 2X10 OR 4X10	8' - 0" - 10' - 0"
2 - 2X12 OR 4X12	10' 0" - 12' - 0"
4X12	GARAGE DOOR 16' - 0"

PURLINS: DOUGLAS FIR #2

PURLIN SIZE	STRUT SPACING
2 X 4	2 X 4 at 6' - 0" oc
2 X 6	2 X 4 at 6' - 0" oc
2 X 8	2 X 4 at 6' - 0" oc
2 X 10	2 X 4 at 6' - 0" oc